

FIG.1

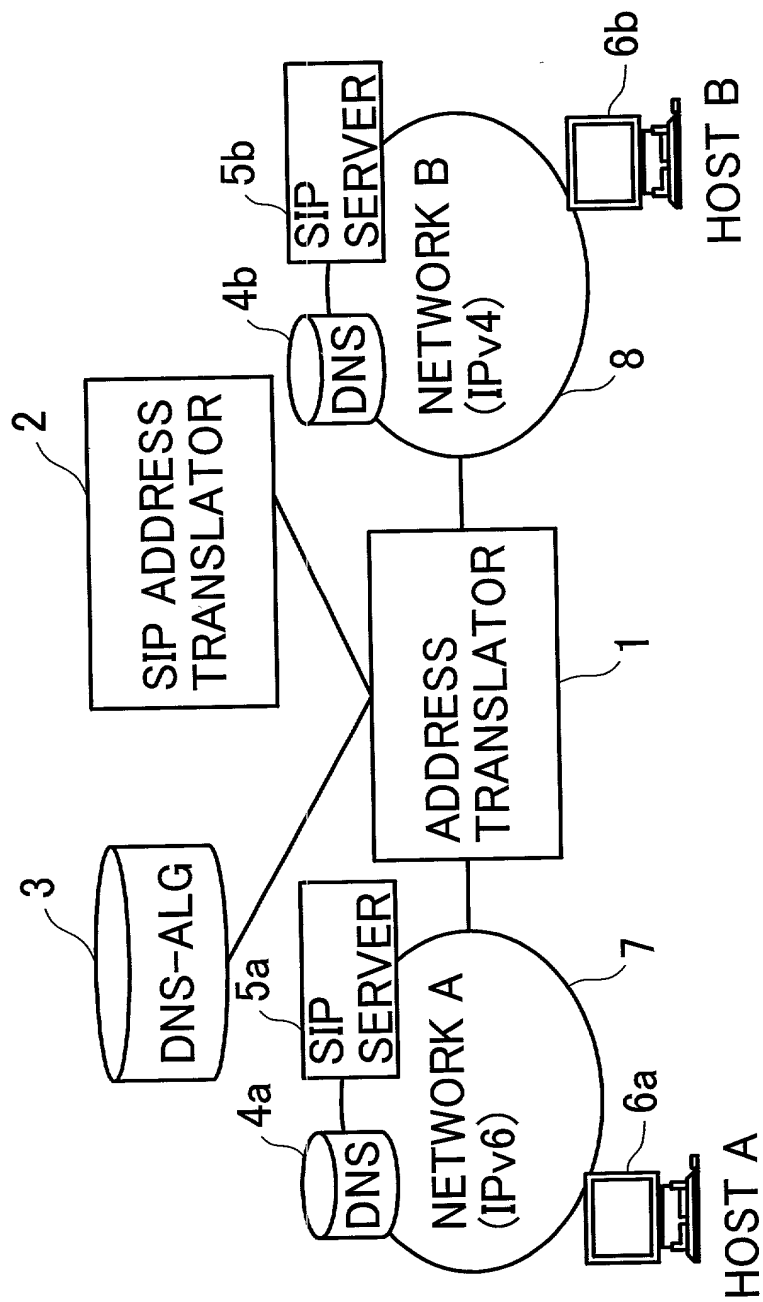


FIG.2

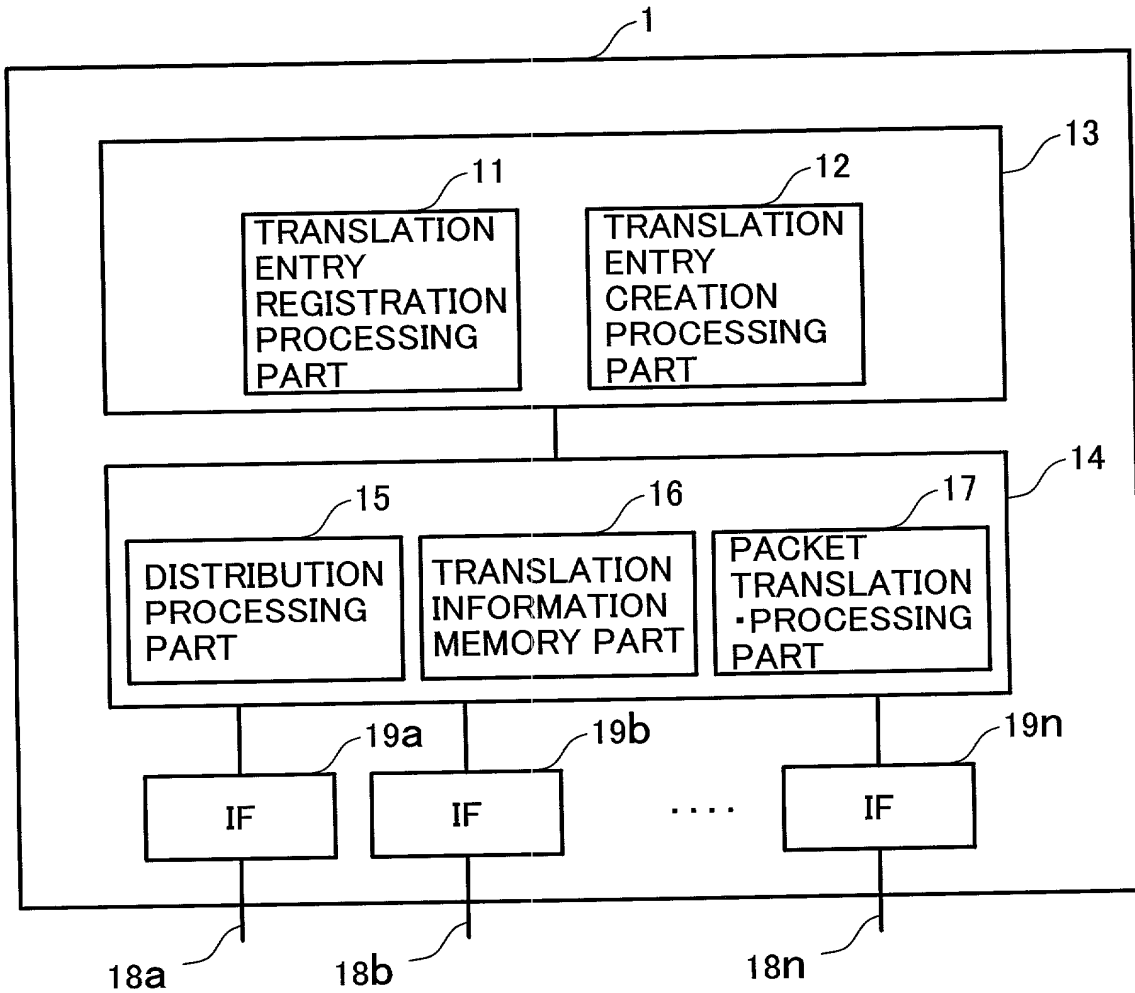


FIG.3

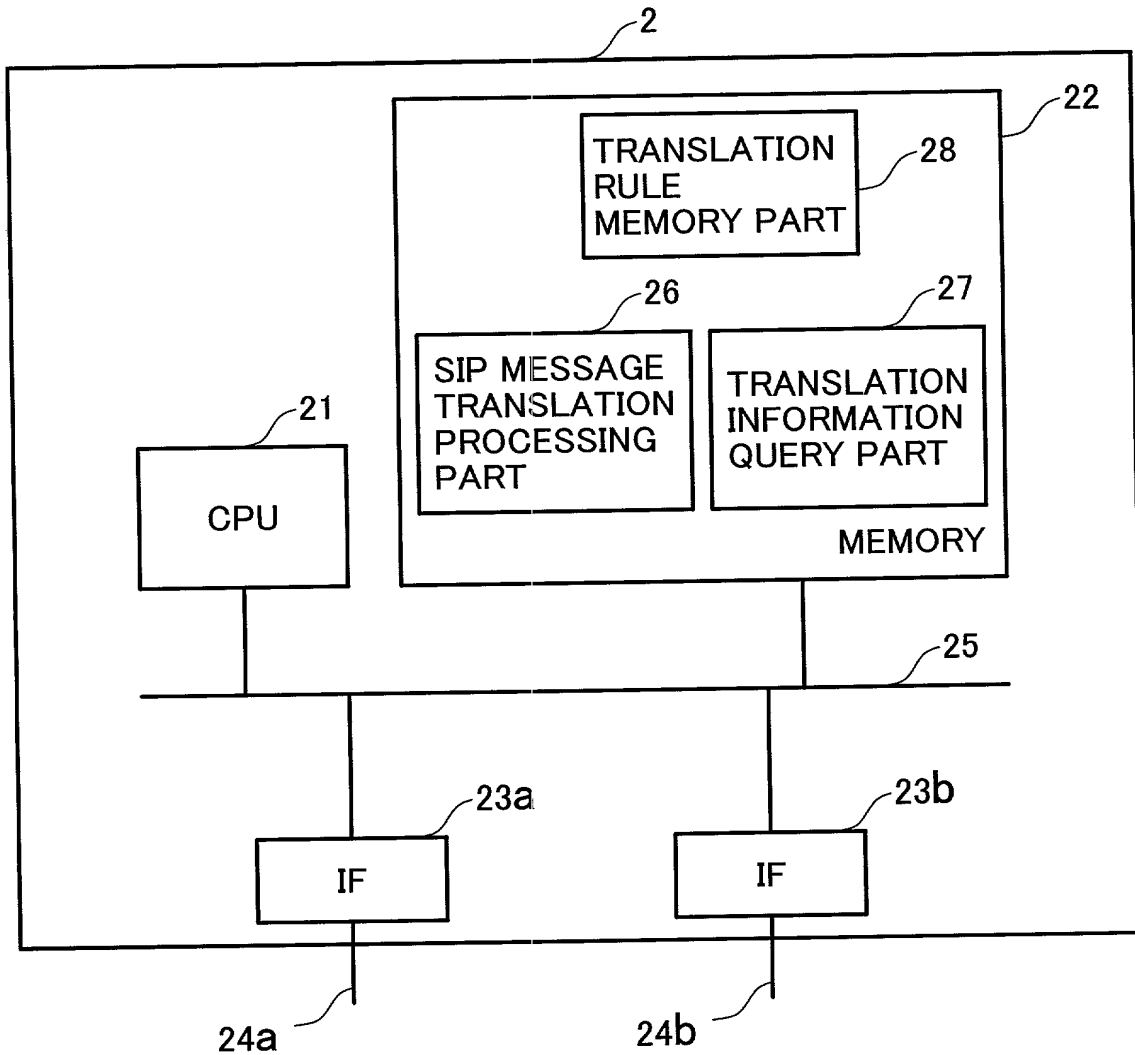


FIG.4

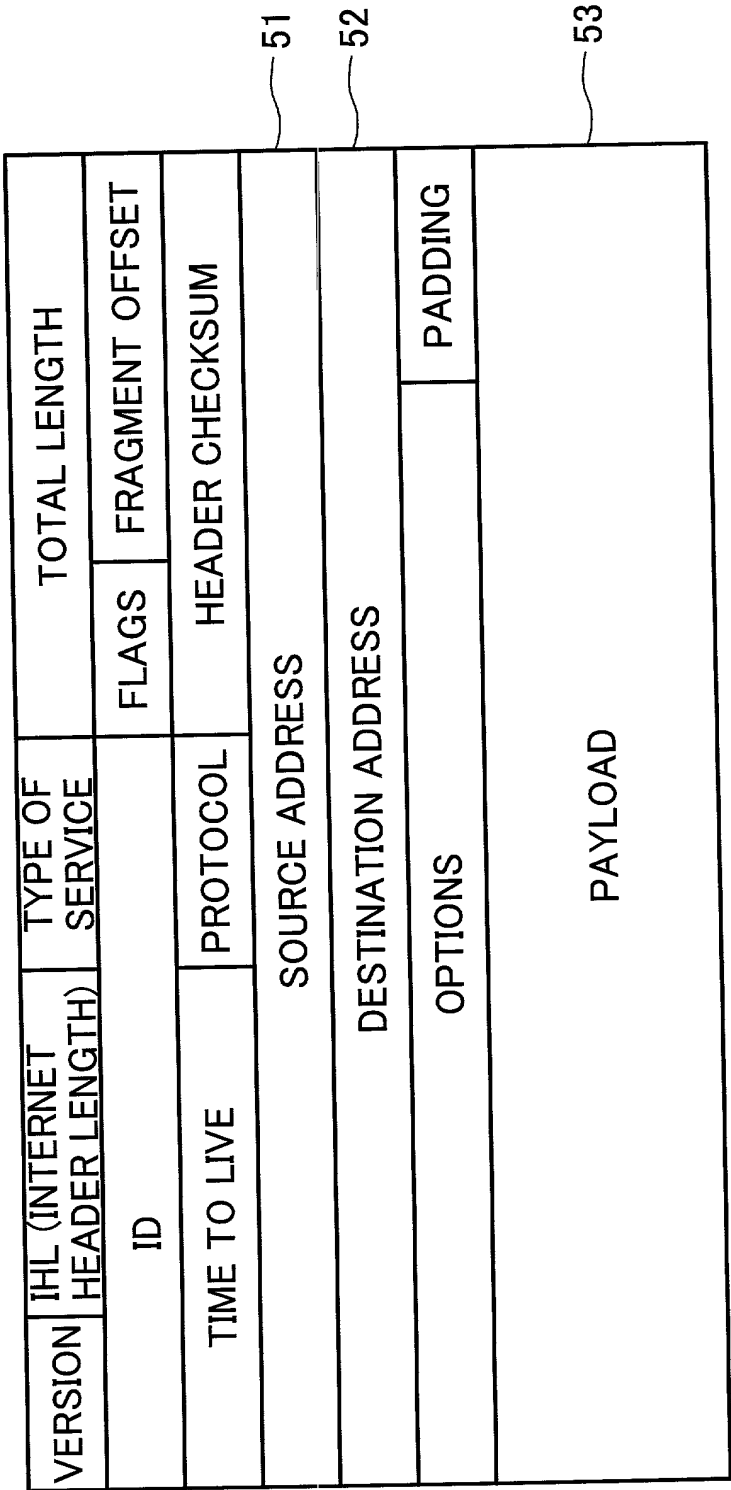


FIG. 5

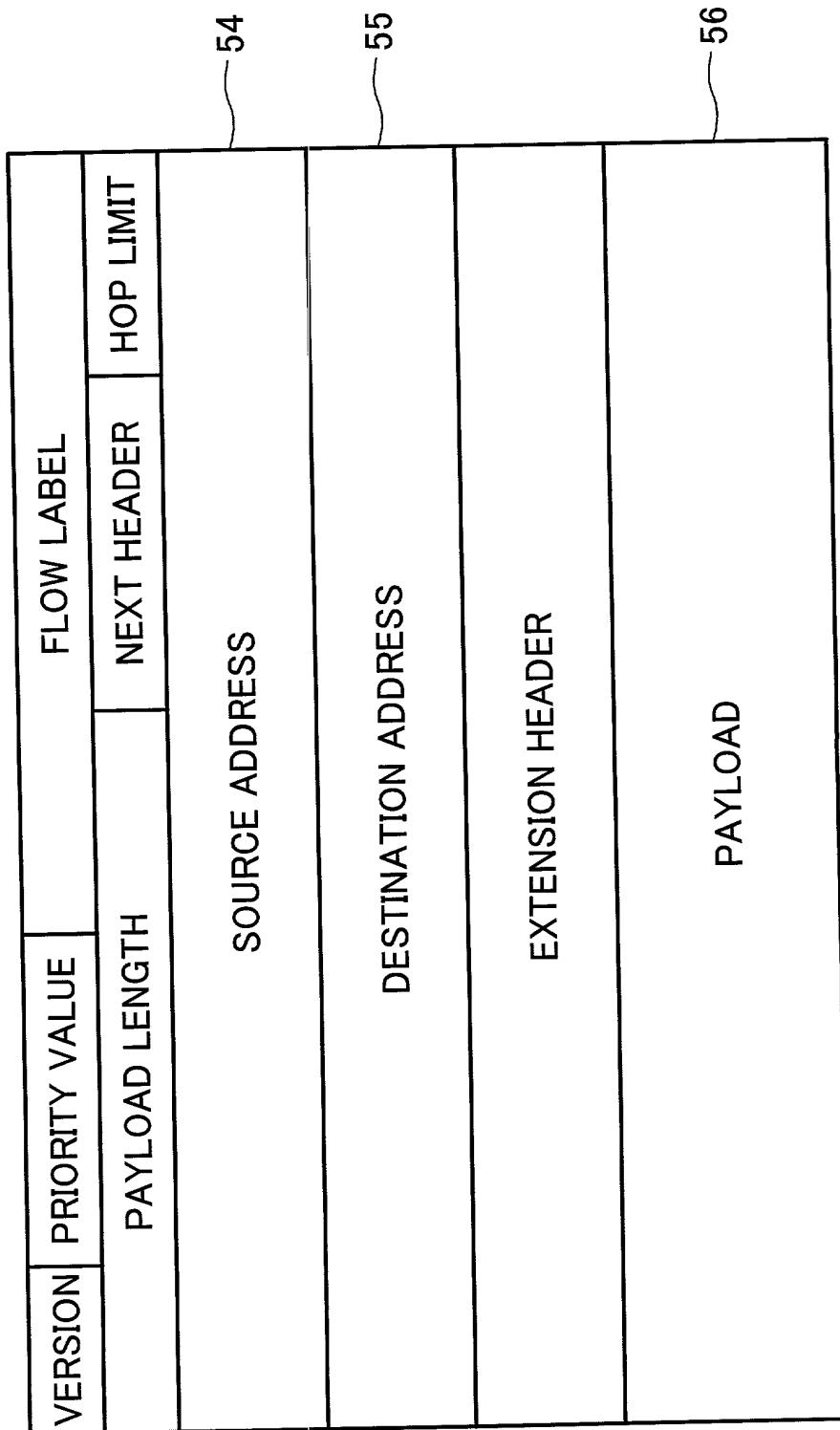


FIG.6

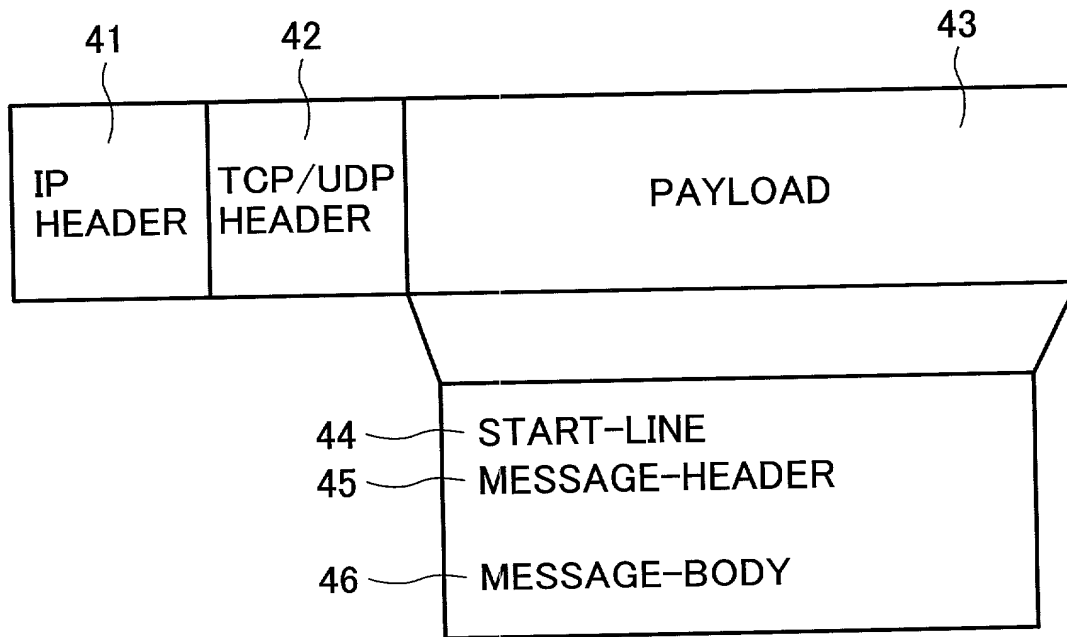


FIG. 7

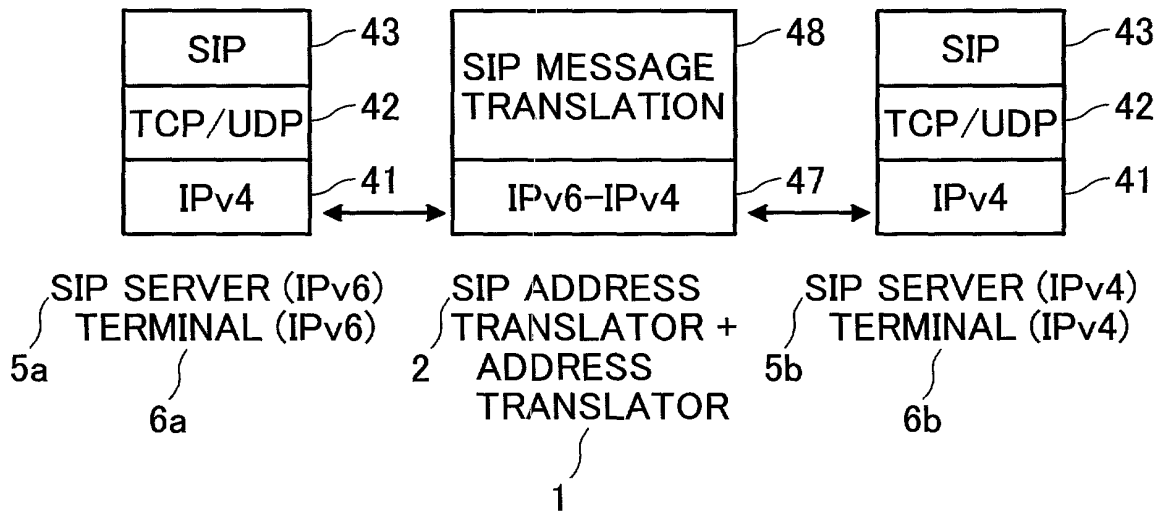


FIG.8

401 SIP INVITE MESSAGE EXAMPLE 1 (TERMINAL 6a → SIP SERVER 5a)

START-LINE (INVITE sip: userB@biloxi.com SIP/2.0

MESSAGE-
HEADER

Via: SIP/2.0/UDP a6
To: Bob <sip:userB@biloxi.com>
From: Alice <sip:userA@atlanta.com>;tag=123
Call-ID: 12345@ a6
CSeq: 1 INVITE
Contact: <sip:userA@ a6>
Content-Type: application/sdp

MESSAGE-BODY

v=0
o=UserB 123 456 IN IP4 userA.atlanta.com
c=IN IP6 a6
m=audio 45678

FIG.9

402 SIP INVITE MESSAGE EXAMPLE 2 (SIP SERVER 5a → ADDRESS TRANSLATOR 1)

START-LINE (INVITE sip: userB@biloxi.com SIP/2.0

MESSAGE-
HEADER

Via: SIP/2.0/UDP sipa6
SIP/2.0/UDP a6
To: Bob <sip:userB@biloxi.com>
From: Alice <sip:userA@atlanta.com>;tag=123
Call-ID: 12345@ a6
CSeq: 1 INVITE
Contact: <sip:userA@ a6>
Content-Type: application/sdp

MESSAGE-BODY

v=0
o=UserB 123 456 IN IP4 userA.atlanta.com
c=IN IP6 a6
m=audio 45678

FIG.10

403 SIP INVITE MESSAGE EXAMPLE 3 (ADDRESS TRANSLATOR 1 → SIP SERVER 5b)

START-LINE (INVITE sip: userB@biloxi.com SIP/2.0

MESSAGE-
HEADER

Via: SIP/2.0/UDP sipa4
SIP/2.0/UDP va4
To: Bob <sip:userB@biloxi.com>
From: Alice <sip:userA@atlanta.com>;tag=123
Call-ID: 12345@ va4
CSeq: 1 INVITE
Contact: <sip:userA@ va4>
Content-Type: application/sdp

MESSAGE-BODY

v=0
o=UserB 123 456 IN IP4 userA.atlanta.com
c=IN IP4 va4
m=audio 45678

100845300

FIG.11

404 SIP INVITE MESSAGE EXAMPLE 4 (SIP SERVER 5b → TERMINAL 6b)

START-LINE (INVITE sip: userB@biloxi.com SIP/2.0

MESSAGE-
HEADER

Via: SIP/2.0/UDP sipb4
SIP/2.0/UDP vsipa4
SIP/2.0/UDP va4
To: Bob <sip:userB@biloxi.com>
From: Alice <sip:userA@atlanta.com>;tag=123
Call-ID: 12345@ va4
CSeq: 1 INVITE
Contact: <sip:userA@ va4>
Content-Type: application/sdp

MESSAGE-BODY

v=0
o=UserB 123 456 IN IP4 userA.atlanta.com
c=IN IP4 va4
m=audio 45678

404 SIP INVITE MESSAGE EXAMPLE 4

FIG.12

405 SIP 200 OK MESSAGE EXAMPLE 1 (TERMINAL 6b → SIP SERVER 5b)

START-LINE (SIP/2.0 200 OK

MESSAGE-
HEADER

Via: SIP/2.0/UDP sipb4
SIP/2.0/UDP vsipa4
SIP/2.0/UDP va4
To: Bob <sip:userB@biloxi.com> ;tag=111
From: Alice <sip:userA@atlanta.com>;tag=123
Call-ID: 12345@ va4
CSeq: 1 INVITE
Contact: <sip:userB@ b4>
Content-Type: application/sdp

MESSAGE-BODY

v=0
o=UserB 123 456 IN IP4 userB.biloxi.com
c=IN IP4 b4
m=audio 35678

405 SIP 200 OK MESSAGE EXAMPLE 1

FIG.13

406 SIP 200 OK MESSAGE EXAMPLE 2 (SIP SERVER 5b → ADDRESS TRANSLATOR 1)

START-LINE (SIP/2.0 200 OK

MESSAGE-
HEADER

Via: SIP/2.0/UDP vsipa4
SIP/2.0/UDP va4
To: Bob <sip:userB@biloxi.com> ;tag=111
From: Alice <sip:userA@atlanta.com>;tag=123
Call-ID: 12345@ va4
CSeq: 1 INVITE
Contact: <sip:userB@ b4>
Content-Type: application/sdp

MESSAGE-BODY

v=0
o=UserB 123 456 IN IP4 userB.biloxi.com
c=IN IP4 b4
m=audio 35678

406 SIP 200 OK MESSAGE EXAMPLE 2
(SIP SERVER 5b → ADDRESS TRANSLATOR 1)

FIG.14

407 SIP 200 OK MESSAGE EXAMPLE 3 (ADDRESS TRANSLATOR 1 → SIP SERVER 5a)

START-LINE (SIP/2.0 200 OK

MESSAGE-
HEADER

Via: SIP/2.0/UDP sipa6
SIP/2.0/UDP a6
To: Bob <sip:userB@biloxi.com> ;tag=111
From: Alice <sip:userA@atlanta.com>;tag=123
Call-ID: 12345@ a6
CSeq: 1 INVITE
Contact: <sip:userB@ vb6>
Content-Type: application/sdp

MESSAGE-BODY

v=0
o=UserB 123 456 IN IP4 userB.biloxi.com
c=IN IP6 vb6
m=audio 35678

FIG.15

408 SIP INVITE MESSAGE EXAMPLE 4 (SIP SERVER 5a → TERMINAL 6a)

START-LINE (SIP/2.0 200 OK

MESSAGE-
HEADER

Via: SIP/2.0/UDP a6
To: Bob <sip:userB@biloxi.com> ;tag=111
From: Alice <sip:userA@atlanta.com>;tag=123
Call-ID: 12345@ a6
CSeq: 1 INVITE
Contact: <sip:userB@ vb6>
Content-Type: application/sdp

MESSAGE-BODY

v=0
o=UserB 123 456 IN IP4 userB.biloxi.com
c=IN IP6 vb6
m=audio 35678

FIG.16

600 ADDRESS QUERY REQUEST

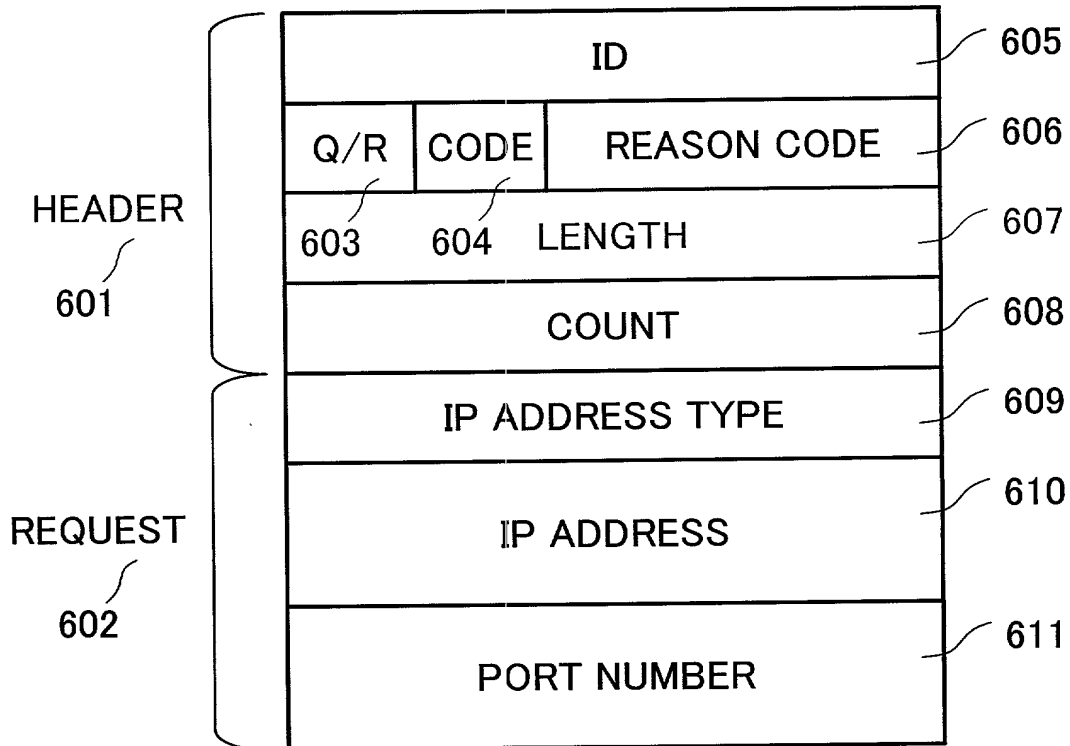


FIG.17

650 ADDRESS QUERY REQUEST RESPONSE

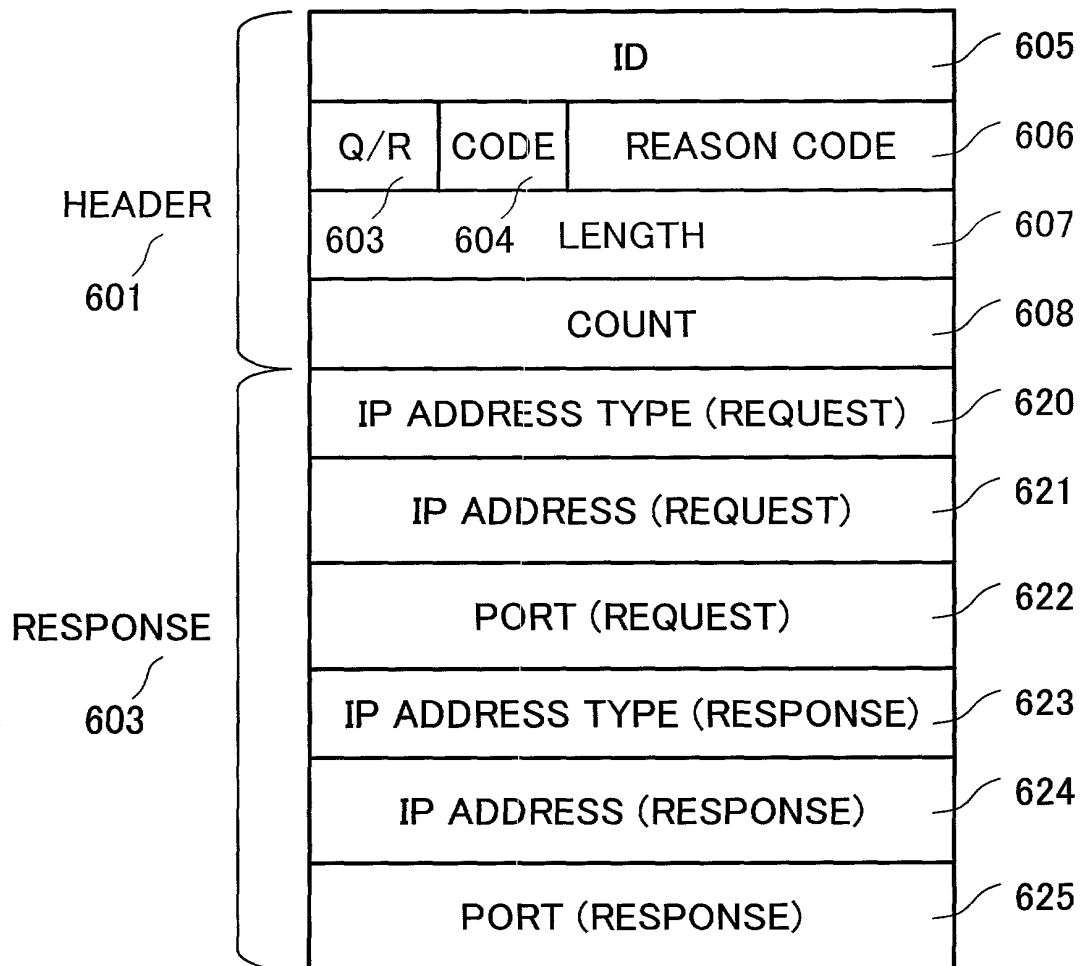


FIG.18

60 SIP MESSAGE TRANSLATION PROCESSING ROUTINE 1

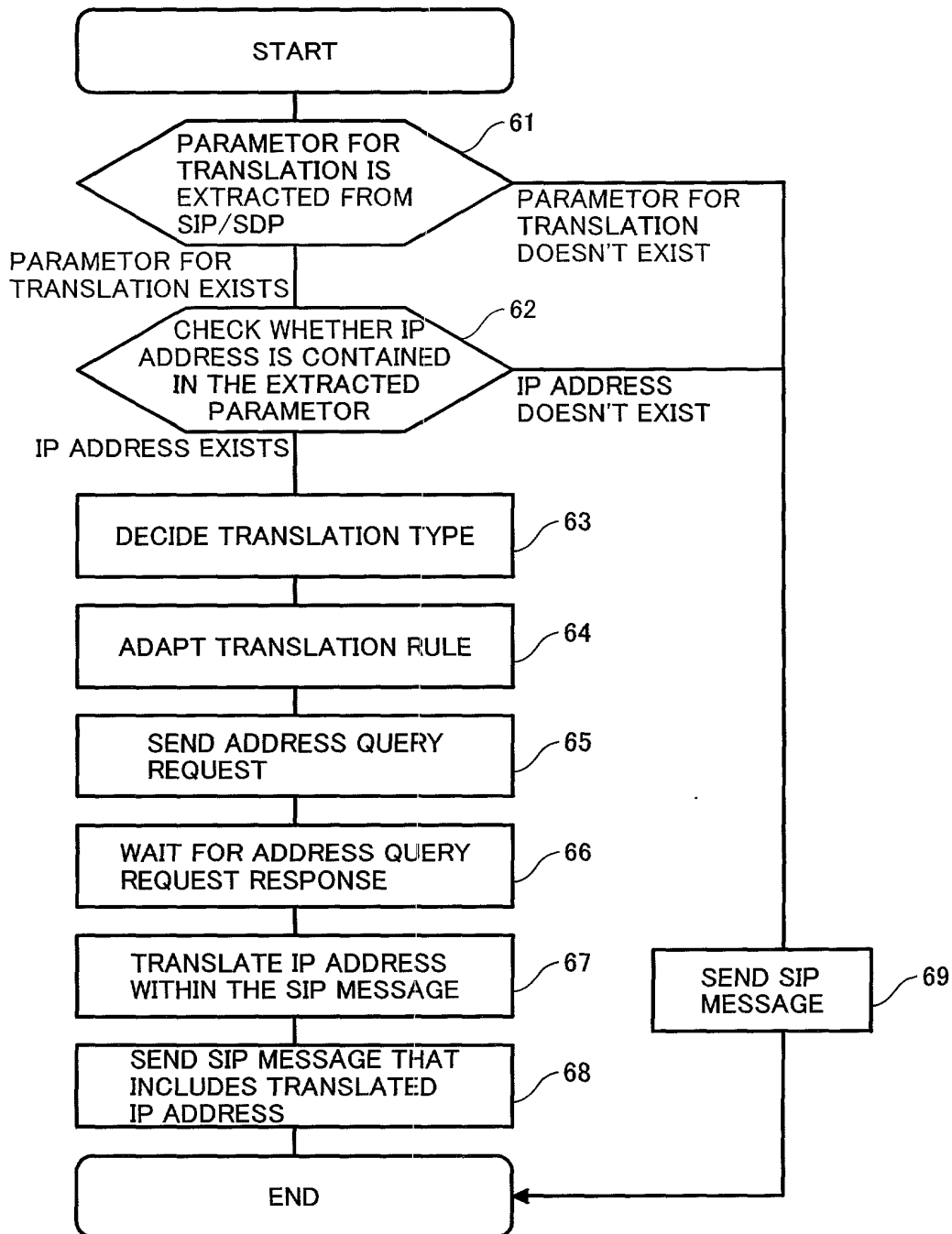


FIG.19

500 TRANSLATION INFORMATION TABLE

501 IPv4 ADDRESS	502 IPv6 ADDRESS
va4	a6 500-1
vsipa4	sipa6 500-2
b4	vb6 500-3
sipb4	vsipb6 500-4
⋮	500-n

FIG.20

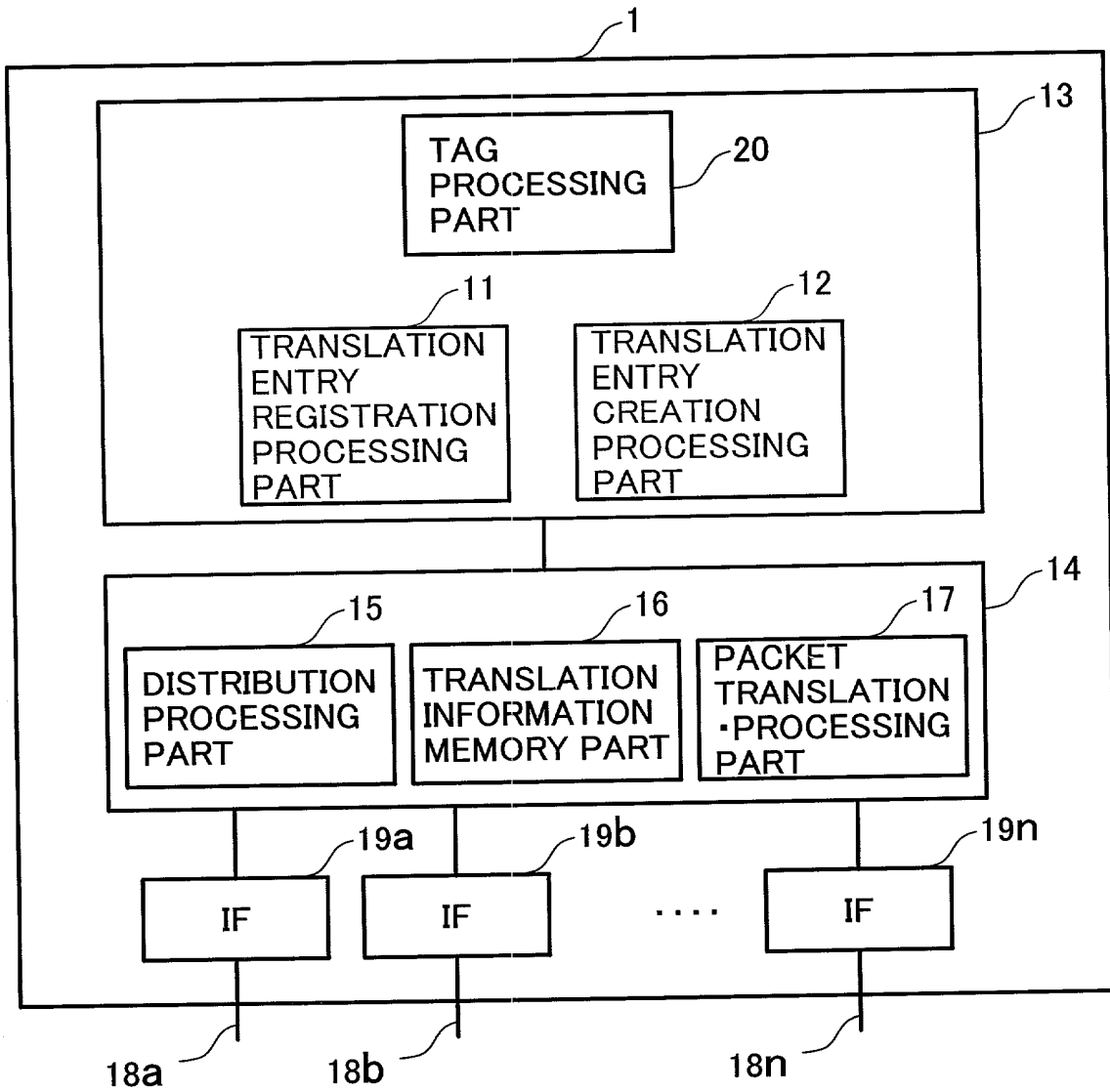


FIG.21

410 EXAMPLE OF SIP MESSAGE WITH TAG

START-LINE (nat123-INVITE sip:userB@biloxi.com SIP/2.0

MESSAGE-
HEADER { nat123-Via: SIP/2.0/UDP sipa6
SIP/2.0/UDP a6
nat123-To: Bob <sip:userB@biloxi.com>
nat123-From: Alice <sip:userA@atlanta.com>;tag=123
nat123-Call-ID: 12345@ a6
CSeq: 1 INVITE
nat123-Contact: <sip:userA@ a6>
Content-Type: application/sdp

MESSAGE-
BODY { v=0
nat123-o=UserB 123 456 IN IP4 userA.atlanta.com
nat123-c=IN IP6 a6
m=audio 45678

FIG.22

80 TAG ADDITION PROCESSING ROUTINE IN ADDRESS TRANSLATOR

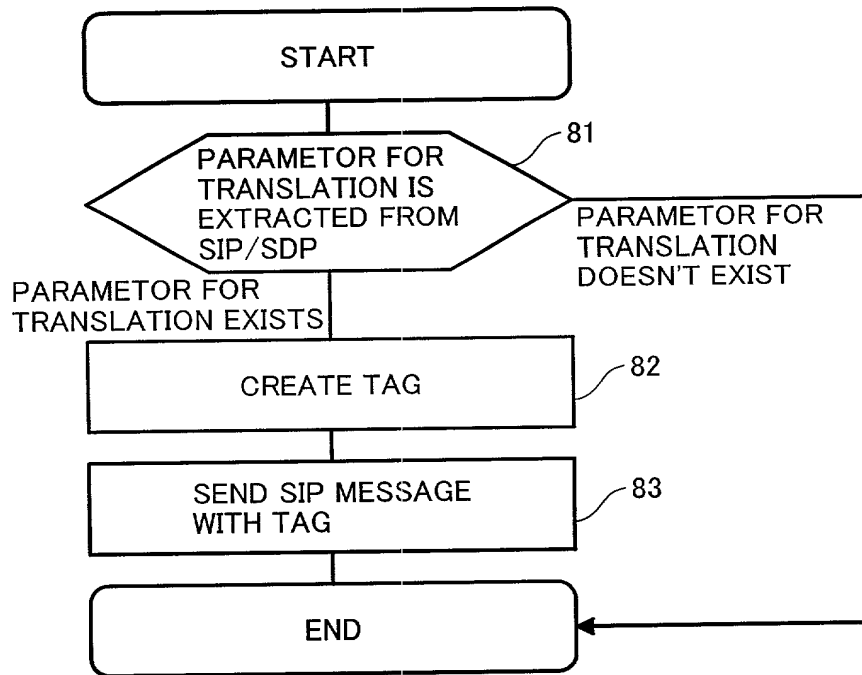


FIG.23

70 SIP MESSAGE TRANSLATION PROCESSING ROUTINE 2

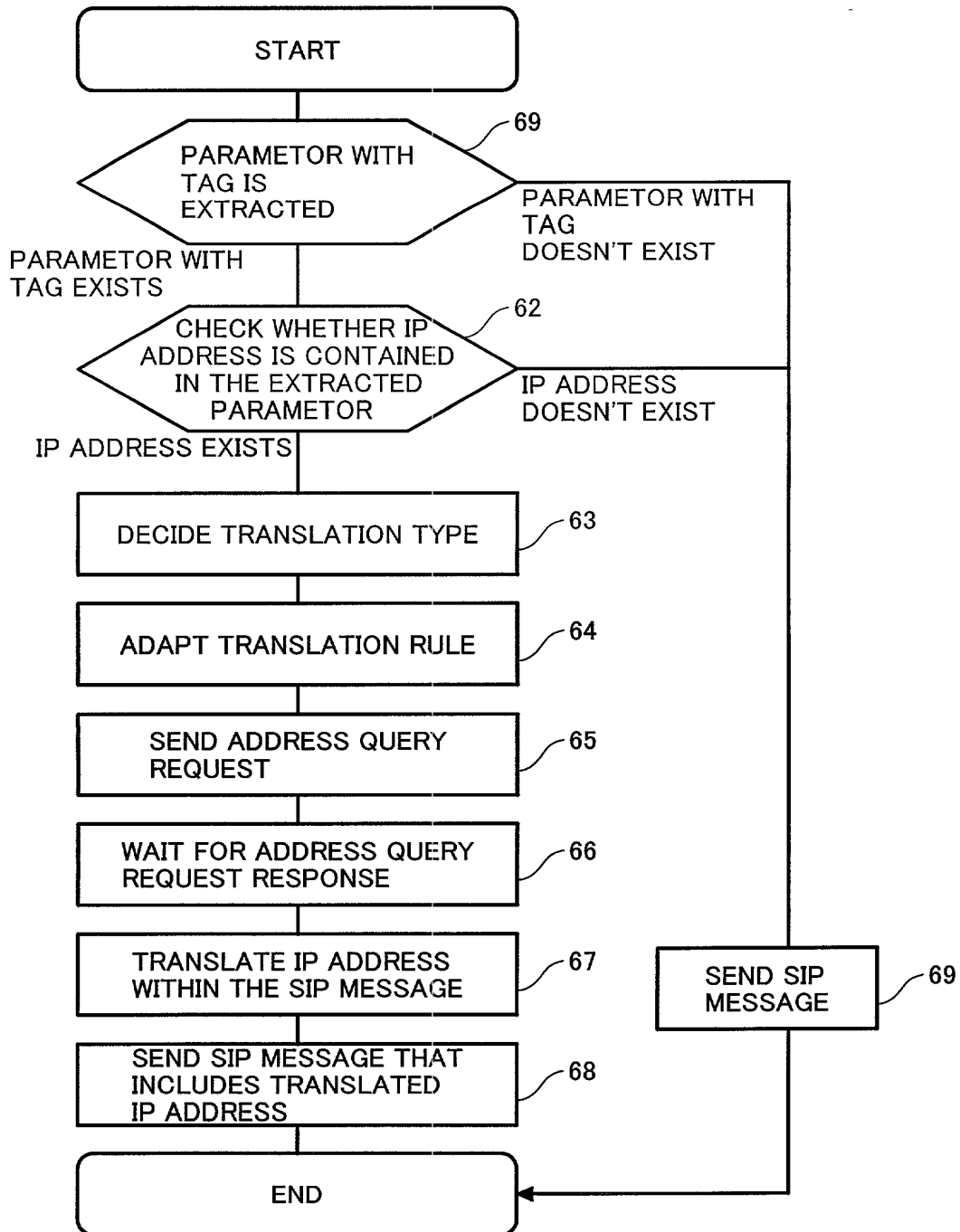


FIG.24

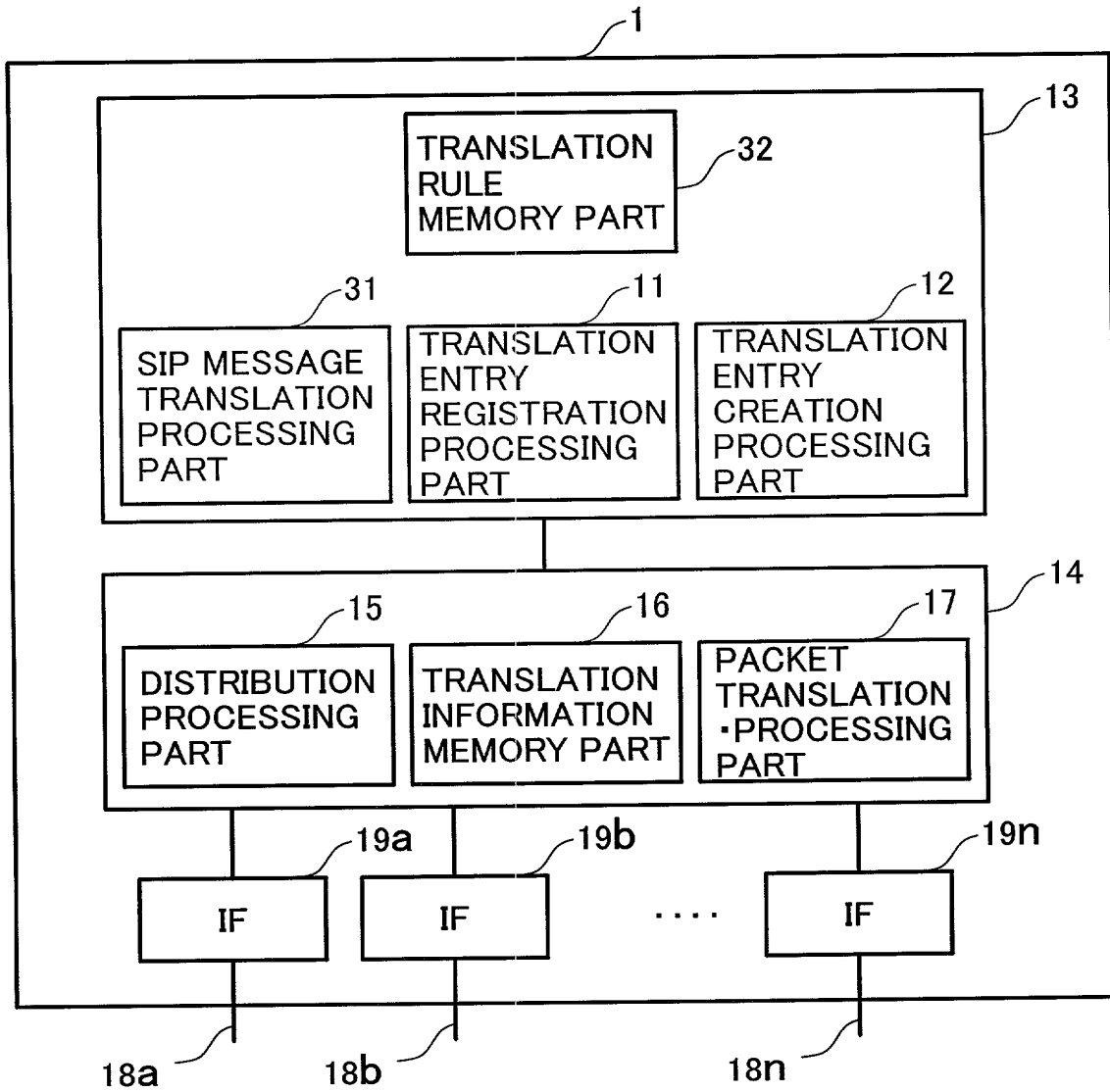


FIG.25

412 PARAMETOR LIST FOR TRANSLATION

START-LINE	REQUEST-URI
MESSAGE HEADER	VIA
	CONTACT
	RECORD-ROUTE
	ROUTE
	TO
	FROM
	CALL-ID
MESSAGE BODY	c=
	o=
	m=

FIG.26

413 NAT-PT TRANSLATION RULE

FIELD FOR TRANSLATION		ACTION
START-LINE	REQUEST-URI	ADDRESS TRANSLATION
MESSAGE -HEADER	VIA CONTACT RECORD-ROUTE ROUTE TO FROM CALL-ID	ADDRESS TRANSLATION
MESSAGE BODY	o c	ADDRESS TRANSLATION
	m	NO TRANSLATION

FIG.27

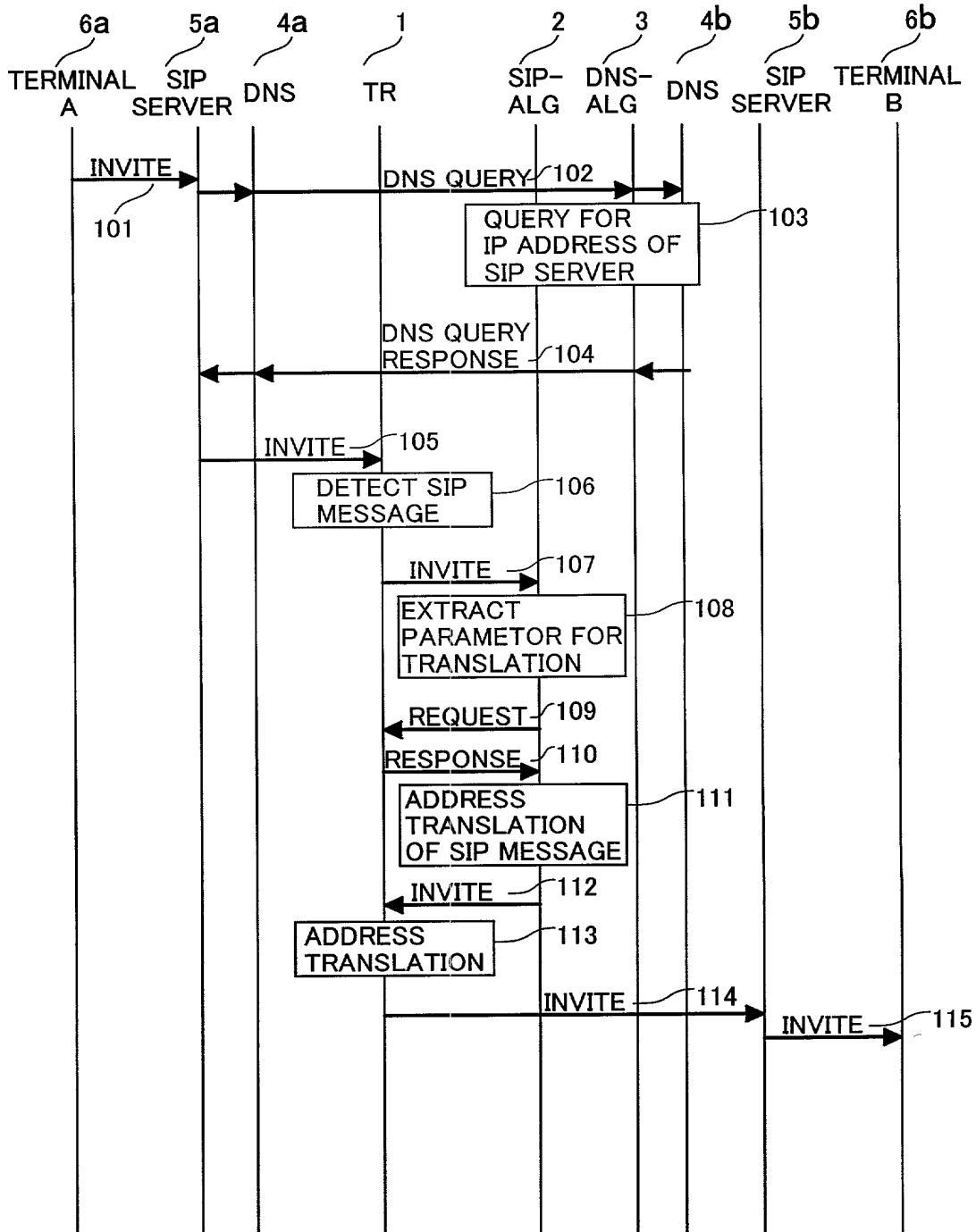


FIG.28

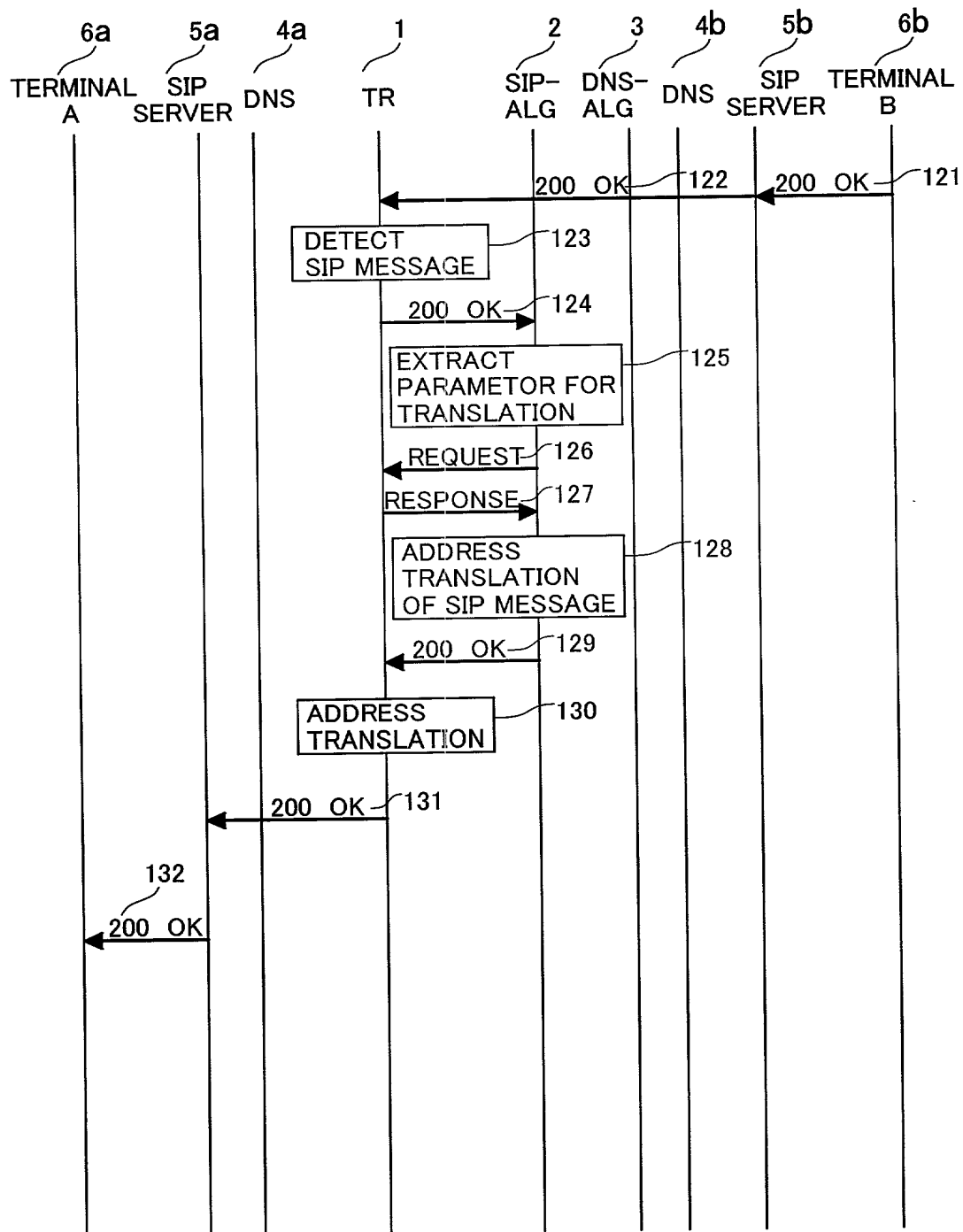


FIG.29

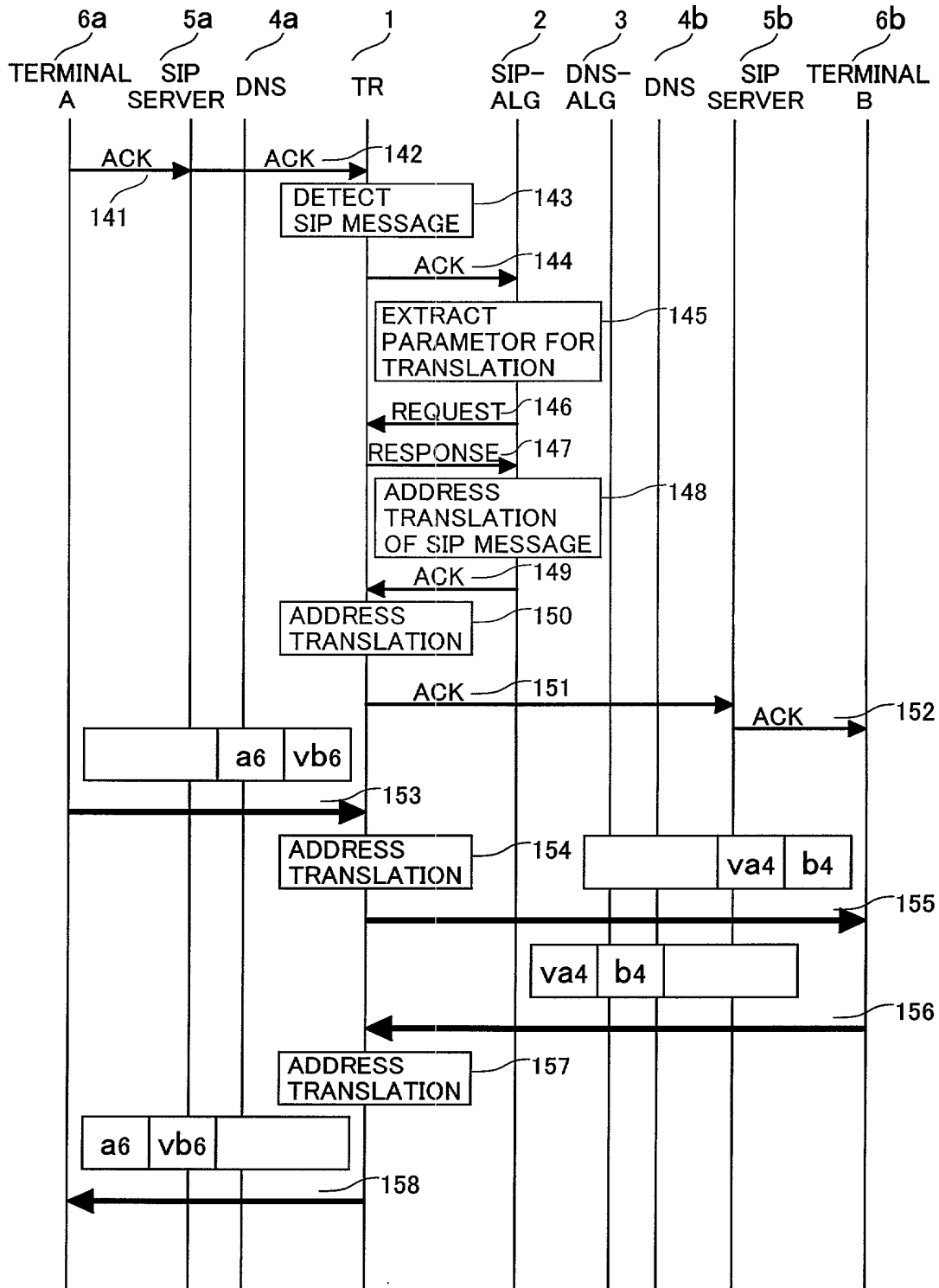


FIG.30

90 TAG ADDITION PROCESSING ROUTINE IN ADDRESS TRANSLATOR 2

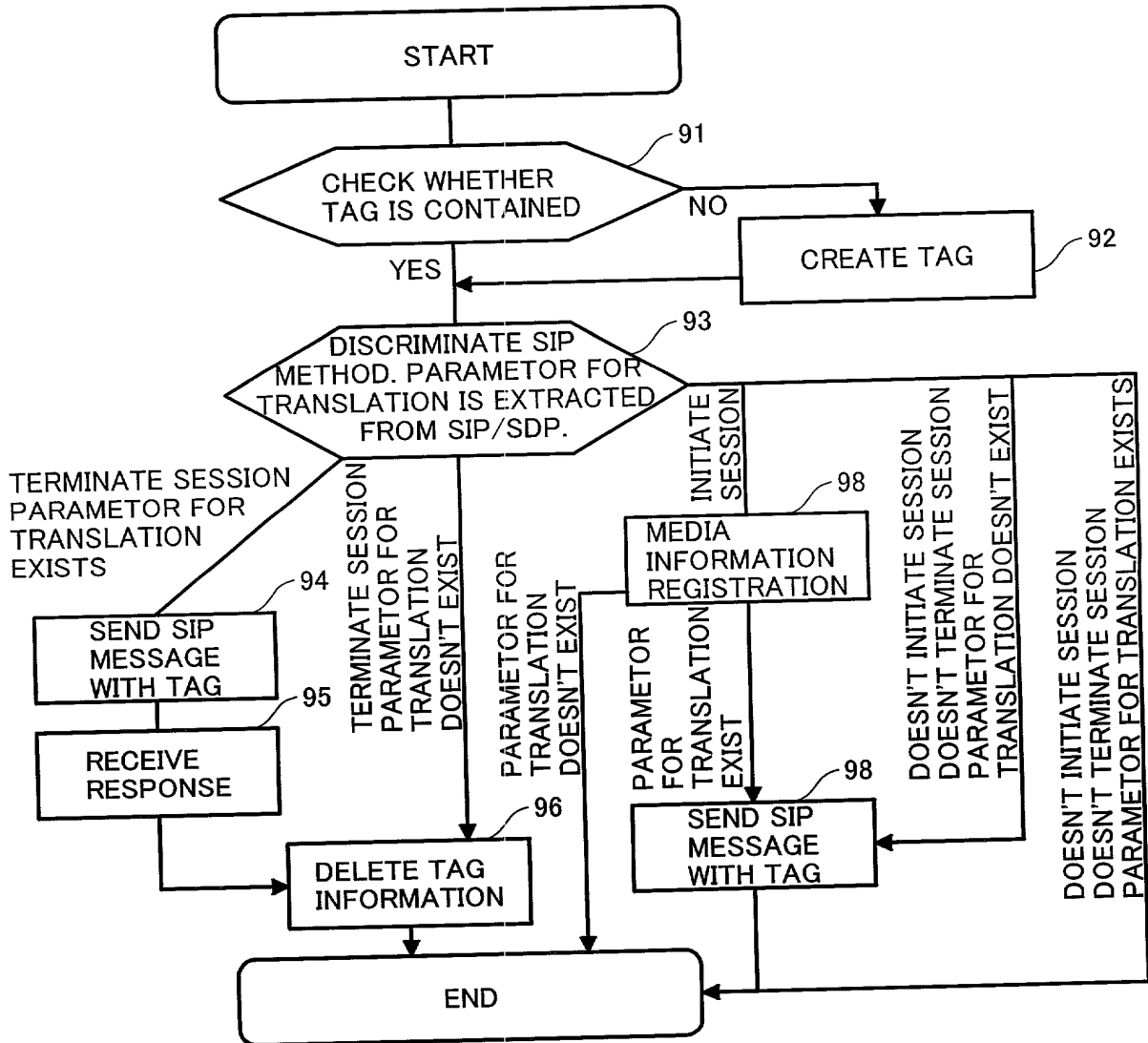


FIG.31

300 TAG MANAGEMENT TABLE

301	302	303	304	305	306	307	
TAG	TO (v6)	FROM (v6)	CALL-ID (v6)	TO (v4)	FROM (v4)	CALL-ID (v4)	
							300-1
							300-2
							300-n

FIG.32

310 MEDIA INFORMATION MANAGEMENT TABLE

311 TAG	312 c (v6)	313 m (v6)	314 c (v4)	315 m (v4)	
					310-1
					310-2
					310-n

FIG.33

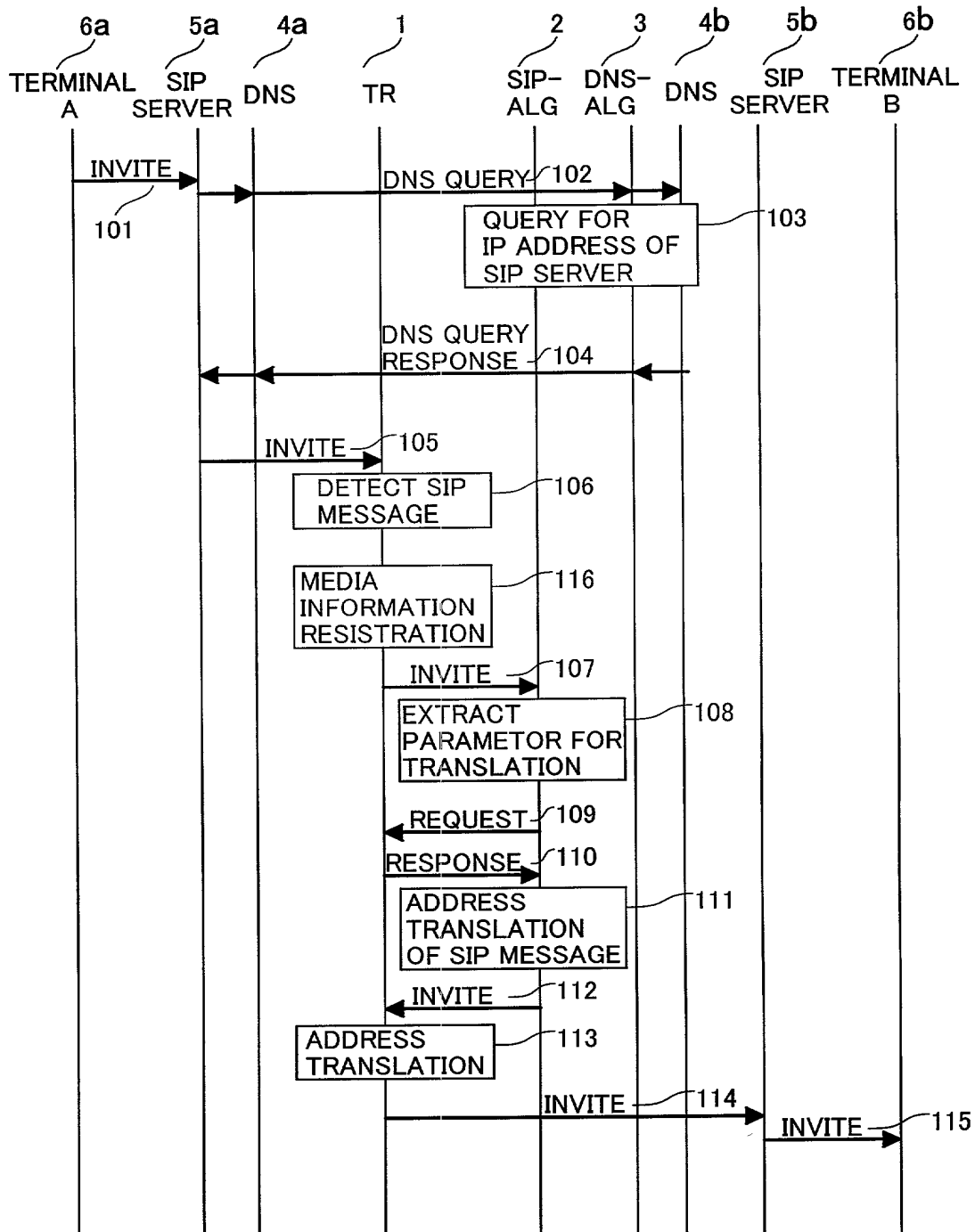


FIG.34

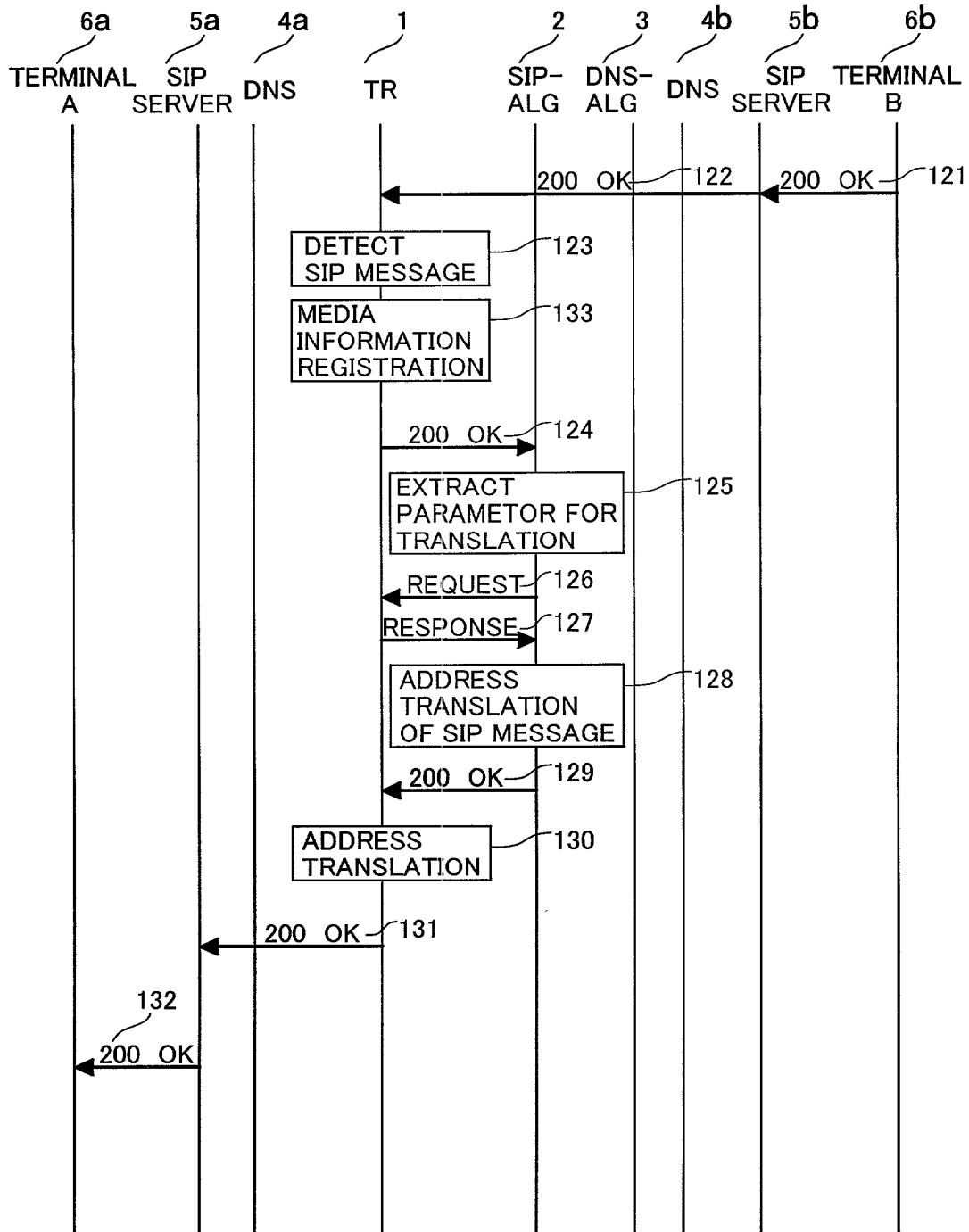


FIG.35

